DOCUMENT RESUME

ED 204 397 TM 810 397

AUTHOR Smith, Gerald R.: And Others
TITLE The SAS Inventory: A Measure of the Extent to Which Alternative and Conventional High Schools Meet Student Needs.
PUB DATE 16 Apr 81
NOTE 18p.: Paper presented at the Annual Meeting of the American Educational Research Association (65th, Los Angeles, CA, April 13-17, 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Environment: *High Schools: Nontraditional Education: *Student Needs: *Student School Relationship: *Test Construction: Test Reliability: Test Validity
IDENTIFIERS Maslows Hierarchy of Needs: *Statements About Schools Inventory

ABSTRACT

The development of a new instrument, the Statements About Schools Inventory (SAS) is described. The SAS measures the extent to which high schools meet the needs of their students for a safe, stable environment (security scale), for interpersonal relationships (social scale), for success and achievement (esteem scale), and for personal growth (self actualization scale). The instrument is administered to students and teachers in a given school to obtain a comprehensive understanding of the school's social climate. The idea for the instrument emerged from a study of alternative schools designed to measure the operational values of alternative high schools. The specific objectives of the present study were: (1) to revise an earlier form of the SAS so that it would encompass a broad range of values expected to occur in both alternative and conventional high schools: (2) to ground the instrument in a theoretical framework that seemed appropriate for the value concepts being analyzed: and (3) to assess the reliability and validity of the instrument with teachers and students in both conventional and alternative high schools. (Author/GK)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED204397

The SAS Inventory: A Measure of the Extent to Which Alternative and Conventional High Schools Meet Student Needs

by

Gerald R. Smith
Thomas B. Gregory
Richard B. Pugh

Indiana University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
G.R. Smith, T.B. Gregory, + R.B. Pugh
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A Paper Presented at the 1981
Annual Meeting of the
American Educational Research Association
Los Angeles, California

April 16, 1981

TM 810 397

Introduction

This paper describes the development of a new instrument, the Statements About Schools Inventory (SAS).[1] Based upon the Maslow needs hierarchy, the SAS measures the extent to which high schools meet the needs of their students for a safe, stable environment (security scale), for interpersonal relationships (social scale), for success and achievement (esteem scale), and for personal growth (self actualization scale). The instrument is administered to students and teachers in a given school to obtain a comprehensive understanding of the school's social climate.

The idea for the instrument emerged from a study of alternative schools conducted by one of us (Smith) in the spring of 1975. - That study, designed to measure the operational values of alternative high schools, was derived from the work of Morris (1956) who employed the Ways to Live Inventory to identify individual's operative values--the values actually functioning in a given situation.

The specific objectives of the present study were 1) to revise an earlier form of the SAS so that it would encompass a broad range of values expected to occur in both atlernative and conventional high schools, 2) to ground the instrument in a theoretical framework that seemed appropriate for the value concepts being analyzed, and 3) to assess the reliability and validity of the instrument with teachers and student in both conventional and alternative high schools.

A number of instruments have been developed to measure school or classroom environments or climates (Sinclair, 1969; Walberg, 1969; Steele, House &

---

[1]This work was supported, in part, by a grant from the Maris Proffitt and Mary Higgins Proffitt Endowment Fund, School of Education, Indiana University.

Kerins, 1971), but only a few (e.g., Pace, 1966; and Stern, 1970) make specific use of value concepts in describing institutional environments, and their work was at the college level. Nevertheless, values have been recognized by a number of scholars as being significant determinants of individual and collective behavior (Morris, 1956; Kluckhohn & Strodtbeck, 1961; Walberg & Anderson, 1972; Rokeach, 1973; Hunt, 1975). Rutter and his colleagues (1979) have most recently identified the social ethos of a school as one of the significant determiners of academic achievement, attendance, school behavior and rates of delinquency.

Development History

The process that culminated in the current Statements About Schools Inventory (SAS) contained four identifiable stages of development. The sustaining objective in that effort has always been to develop an instrument that could systematically describe the "climates" of both alternative and conventional schools. Differences we perceived in the "values climates" of those schools seemed an appropriate arena in which to concentrate our efforts.

Stage One

The first version of the instrument, developed by Smith in 1975, contained 22 intuitively composed value statements, of 42 to 78 words in length, each describing one element of a school environment. The value statements, printed on 5½" by 8½" sheets, were sorted by alternative school students and teachers into a five-point Likert array. The following statement, describing the value freedom, typifies the content and format of these statements:

Statement 9

> This school gives students a great deal of freedom in their day-to-day routine. Students choose not to attend classes, may move about in classes, talk freely with their fellow students, leave classes without permission and so on. They have considerable freedom in the choice of what they learn and how they learn it. They are as free as adults to speak their mind without fear of censorship or punishment.

This early version of the instrument, though relatively crude, bore two interesting characteristics. It did seem to produce results in the 8 alternative schools studied that one would not expect to find in most conventional schools. Also, students' interest seemed to be held by the simple process of manipulating the sheets; their levels of involvement seemed higher than those evident on conventional paper and pencil instruments that were also used.

Stage Two

We decided to rethink this early version of the instrument. We wanted to increase its level of sophistication, especially by grounding it more firmly in theory, while maintaining its positive characteristics. After examining several theories interfacing with the values domain, we settled on Maslow's needs hierarchy (1954) as a heuristic for the redeveloped instrument. The decision was based on three factors. Maslow's hierarchy is widely cited in educational literature and regularly applied in practice; needs and values have been described as equivalent or closely related concepts (Rokeach, 1973); and schools are presumed to be responsive to the needs of the students they serve, suggesting a linkage between the operational values of a school and the satisfaction of its students' needs. From the outset, we decided to use only the top four needs levels (security, social, esteem, and self actualization) in the SAS.

In 1977, many of the original SAS's statements were rewritten and abridged. Several were recast in negative terms to balance the response mode of the instrument and several values that proved difficult to categorize in the Maslow hierarchy were eliminated. Also, the relatively cumbersome sheaf-of-papers format was replaced by one resembling a game comprised of a deck of 1 3/4" x 2 3/8" cards and a board upon which they could be sorted.

Perhaps the most significant innovation was the addition of a second sorting of the statements. Not only were students and teachers asked to sort their schools as they actually saw them operating, but they were also asked to re-sort the cards to describe their ideal schools. Our goal was to transform differences in these two sorts into a measure of the degree of satisfaction of each student or teacher. The resulting instrument was a deck of 24 small cards containing four scales corresponding to the top four levels of the Maslow needs hierarchy. Each scale contained three positive and three negative statements of 33 to 58 words with a sixth grade readability level (Flesch, 1951). Two examples of the content and format of these statements appear below:

> This school is a happy, warm, friendly place to be. Teachers and students often show real concern for one another and go out of their way to help each other. People are relaxed and sociable. There is a lot of laughter, and having fun is okay. People really enjoy being with each other here.

> Competition is stressed in this school. For example, students compete for high grades, awards, honors, varsity letters, and important positions in plays and music groups. Success is defined as doing better than others and winning is a key to being important.

The 24 value concepts, by scale, were:

Security Values	Social Values
Risk (+)	Cooperation (+)
Security (+)	Equality (+)
Stability (+)	Warmth (+)
Control (-)	Coercion (-)
Formalism (-)	Hostility (-)
Orthodoxy (-)	Lifelessness (-)

Esteem Values	Self-Actualization Values
Student Freedom (+)	Achievement (+)
Student Involvement (+)	Authenticity (+)
Student Responsibility (+)	Creativity (+)
Competition (-)	Conformity (-)
Evaluation (-)	Non-Growth (-)
Hard Work (-)	Time Incompetence (-)

As a pilot trial of the revised SAS, we administered it to 176 beginning teacher education students in the fall of 1978. The students, most of whom were freshmen and sophomores, were asked to rate their respective high school experiences.

Administering the instrument involved having a subject sort the deck of 24 cards into five Likert-like piles ranging from statements that "almost always fit my school" (score = 5) to "almost never fit my school" (score = 1). Negative items were reversed. Subjects then re-sorted the cards into piles describing their ideal schools. The intent was that the difference in total scores between these two sorts would have sufficient reliability that it would represent a relative measure of a student's (or teacher's) dissatisfaction with his/her present school. Such a scale might prove useful in comparing how well various kinds of schools meet the needs of their clientele.

This version of the SAS yielded reliabilities ranging from .50 to .77 using Cronbach's alpha estimate, but it still contained important weaknesses.

While some items clustered into the Maslow hierarchy, others did not. Inter-correlations of scales were approximately the same size as the reliability coefficients and factor analysis supported the conclusion that more work on the subscales was needed. Post facto analysis of the independent assignment of items to scales by a panel of graduate students also yielded only marginal agreement. Additionally, comments volunteered by subjects suggested that several items bore semantic deficiencies.

Stage Three

The decision was made to undertake a second revision. The earlier, intuitive-rational process of composing items was replaced by an empirical one. Ten short sentences were composed for each of the original 24-value concepts and four new ones. Item order for a particular value concept was varied to mute ordering effects. Two groups--one of alternative school teachers (N = 35) and one of conventional school teachers (N = 51)--were asked to act as expert panels and rate how well each sentence fit its value concept in the context of their schools. Each subject rated the sentences for approximately 10 of the 28 values. Each teacher scored each of his/her statements on a scale from 1 to 5 corresponding to how well they judged that it fit the value concept. For a statement to remain in consideration it had to achieve an average score of 3.7 (3.5 plus .2 standard error of measurement) by both the conventional and alternative school teacher groups. Two value concepts (evaluation and formalism) were completely eliminated at this point because they did not have at least three items achieving this criterion. Only the best five items were kept in consideration for any value concept even if more items achieved the 3.7 criterion score. This distillation of statements left a pool of 124 statements spread across 26 value concepts which were then printed on small cards.

Next a panel of ten advanced graduate students were trained in the Maslow hierarchy and then given a mastery test made up of excess statements that had also achieved the 3.7 criterion. All the trained students then rated the fit (strongly agree to strongly disagree) of each statement into each level of the hierarchy. Only items receiving unanimous or near unanimous judgments of those students scoring extremely high on the mastery test were used in placing statements in the hierarchy.

Fifteen statements judged as fitting each of the four levels of the hierarchy were selected for inclusion in the 60 item instrument we intended to field-test. Our experts had particular difficulty agreeing on the placement in the hierarchy of negatively stated concepts such as conformity, hostility, coercion, and orthodoxy. As a result, none of these value concepts were among the 19 that had survived our several screening procedures.

Several hundred boxed, four color decks of 134, 2 7/8" and 1 7/8" cards were then prepared incorporating the final 60 statements. They each included:

1. A set of 64 cards with which to rate one's actual school, each bearing one statement. Four statements were repeated to enable us to compare ratings of identical[2] statements and thus eliminate unconscientious subjects.

2. A set of five Likert "header cards" ranging from "almost always fits my school" to almost never fits my school" to aid the sorting and scoring process.

3. A group of 60 cards with which to rate the ideal school.

4. A set of five header cards for the ideal sort.

---

[2]Judgments of identical statements one category apart were given a difference score of one, two categories apart, a two, et cetera. A total difference score higher than six or a single difference score higher than two resulted in elimination of that subject's data.

The following eight statements (two per scale) are typical of those comprising the final instrument:

Security Scale

This school is well organized.
Teachers enforce the rules here.

Social Scale

The teachers here are enthusiastic.
Helping each other is encouraged here.

Esteem Scale

Each student feels worthwhile here.
Students are treated as mature persons.

Self-Actualization Scale

This school believes students can become better people.
Students are encouraged to be creative.

The readability of the SAS was again assessed and found to still be at the sixth grade level.

Stage Four

The instrument was then field-tested in seven alternative and six comprehensive high schools in a four state area. In most of the alternatives, which were typically small, we attempted to collect data from all their students and teachers. In the comprehensive high schools, we tried to collect data from between 100 and 150 students and at least 75 percent of the teachers. Students were also administered the Quality of School Life (QSL) (Epstein and McPartland, 1978), our criterion measure of concurrent validity. In all, useable data were acquired from 1,181 students and 483 teachers.

Early analyses made it clear that the scales could be reduced to 10 items each with little loss in reliability and it is the results for this truncated, 40 item instrument, the final size of the SAS, that will be reported in the results section.

The final 40 item instrument contains 16 value concepts with one to four statements per concept. While too few items of any single value concept are included to warrant a separate analysis, a listing of them and the number of statements representing each helps describe the scope of the SAS:

order (4)	achievement (2)
warmth (4)	freedom (2)
community (3)	participation (2)
control (3)	personal growth (2)
divergence (3)	responsibility (2)
self-acceptance (3)	risk (2)
stability (3)	cooperation (1)
status/recognition((3)	liveliness (1)

Six hypotheses guided our analyses of the results obtained in the 13 schools:

For the Actual Sort

1) On the security scale, conventional schools will score significantly higher than alternative schools as judged by both students and teachers.

2) On the social scale, alternative schools will score significantly higher than conventional schools as judged by both students and teachers.

3) On the esteem scale, there will be no significant difference in the scores of conventional and alternative schools as judged by both students and teachers.

4) On the self-actualization scale, alternative schools will score significantly higher than conventional schools as judged by both students and teachers.

For the Ideal Sort

5) On all four scales, similar trends will occur to those hypothesized for the actual sort.

In General

6) On all four scales, there will be a significantly higher degree of agreement between students and teachers in alternative schools than between students and teachers in conventional schools on both the actual and the ideal sorts.

Results

Reliability Estimates

During the administration of the SAS, students and teachers were asked to first classify statements as they perceived their actual school and secondly, as they perceived their ideal school (i.e., one which they would most like to attend or in which they would most like to teach). Using the school as the unit of analysis, the estimates of reliability of the SAS scales (Cronbach alphas) ranged from .88 to .98 for the students' actual school classifications and from .92 to .99 for the students' ideal school classifications. For teachers, estimates of reliability ranged from .87 to .97 for their actual school classifications and .80 to .96 for their ideal school classifications.

Intercorrelation Matrix

The intercorrelation matrix for students on the actual school classification shows that, with the exception of Security, which bears a near zero relationship to the rest of the scales, all scales are highly correlated with each other (r's = .92 to .96). A similar pattern occurs for teachers. The correlations among the scales, except for Security, range from .73 to .95. The Security scale, however, was not significantly correlated with the other three scales. Empirically then, it appears that the SAS has two highly reliable and independent

scales: Security and something we might call "personal/social support." However, since the scales were constructed on the logic of the Maslow needs hierarchy, some confidence in the validity of the scales still seems justified.

Concurrent Validity

In order to study the concurrent validity of the SAS, scale scores from the QSL were correlated with its scale scores. Because the QSL is not appropriate for teachers, only student scores were compared. Three of the four scales of the SAS (Social, Esteem, and Self-Actualization) show high positive correlations with the three subscales of the QSL (Satisfaction with School, Commitment to Classwork, and Reactions to Teachers). These correlations range from .63 (between Esteem and Satisfaction) to .95 (between both Esteem and Social and Reactions to Teachers). Six of the nine correlations were in the .90 range. As we expected, the Security scale reflected low correlations with the three QSL measures (.15 with Satisfaction, -.18 with Commitment, and -.13 with Reactions to Teachers). With the exception of Security, all of the correlations were significant at the .01 level or greater.

Comparisons Between Alternative and Conventional High Schools

Using a split plot, four factor factorial design (2 school types x 2 respondees x 2 sorts x 4 scales) with repeated measures on three factors, several specific trends emerged. Because the fourth order interaction was significant ($p < .01$) simple comparisons among cell means were conducted by contrasting alternative school means with conventional school means. (See Tables 1 and 2.) The trends for the actual sort were similar for the Social, Esteem and Self-Actualization scales in the case of both students and teachers.

Alternative school means were significantly higher than conventional school means on these scales. However, the Security scale means were not significantly different) for the two types of schools.

For the ideal sort, students' means for the two school types were very similar for the Social, Esteem and Self-Actualization scales. The Security scale mean was significantly higher for the conventional school. Alternative school teachers tended to have slightly higher means than teachers from conventional schools on three of the scales. For the Security scale, the trend was again reversed with the conventional school mean being slightly higher.

Study of Three Concommitant Factors

The length of time attending or employed by the school, sex, and a variable defined along a strict/relaxed continuum were investigated as possible concommitant factors associated with the differences found by the alternative/conventional school comparisons. We found that all three factors were not associated with the alternative/conventional school comparisons. That is, all the interactions were non-significant. Similar findings were obtained from both students and teachers and for both the actual and ideal sorts.

Confirmation of Hypotheses

In summary, hypotheses 2 and 4 were confirmed as stated. Surprisingly, hypothesis 1 was not supported. Despite stereotypes defining alternatives as loose, do-your-own-thing environments, we found no significant difference by school type in the degree to which security needs are perceived as being met by either students or teachers.

Our prediction of no significant difference by school type on the esteem scale (hypothesis 3) was not supported. Both teachers and students in

alternative schools judged their schools as responding to esteem needs at a significantly higher level than did their conventional school counterparts.

Hypothesis 5 is a restatement of the first four hypotheses applied to the ideal sort. In this context, hypotheses 1, 2, and 4 were not supported. Predicted differences in socres on the Security, Social, and Self actualization scales were non significant. Only the third hypotheses of no significant difference on the Esteem scale was supported. This means that alternative and conventional school students and teachers hold a similar ideal of what schools should be doing to meet students needs.

Hypothesis 6 was not supported. The interaction between school type and respondee was non significant.

TABLE 1

Mean Raw Scores on all SAS Scales for Students and Teachers in Alternative and Conventional Schools

	Type of School	
	ALTERNATIVE	CONVENTIONAL
STUDENTS		
ACTUAL SORT		
Security Scale	34.43	36.16
Social Scale	37.52	30.51
Esteem Scale	35.49	29.41
Self-Actualization Scale	38.30	33.64
IDEAL SORT		
Security Scale	37.70	40.17
Social Scale	41.55	40.48
Esteem Scale	43.10	43.06
Self-Actualization Scale	41.99	41.87
TEACHERS		
ACTUAL SORT		
Security Scale	38.56	38.00
Social Scale	41.27	35.82
Esteem Scale	42.09	37.27
Self-Actualization Scale	40.81	37.29
IDEAL SORT		
Security Scale	43.15	44.87
Social Scale	46.61	44.03
Esteem Scale	47.90	45.08
Self-Actualization Scale	46.04	44.53

TABLE 2

Summary of Analyses of Variance

SOURCES OF VARIATION	df	F	p
Between Schools			
Type (A)	1	5.63	.05
Error 1 (R(A))	12		
Within Schools			
Responders (T)	1	41.65	.01
TA	1	1	-
Error 2 (TR(A))	12		
Sorts (Q)	1	578.48	.01
QA	1	36.25	.01
Error 3 (QR(A))	12		
Scales (S)	3	1.54	-
SA	3	5.08	.05
Error 4 (SR(A))	36		
TQ	1	1	-
TQA	1	2.26	-
Error 5 (TQR(A))	12		
TS	3	8.57	.01
TSA	3	1.41	-
Error 6 (TSR(A))	36		
QS	3	14.95	.01
QSA	3	2.18	-
Error 7 (QSR(A))	36		
TQS	3	20.62	.01
TQSA	3	5.08	.01
Error 8 (TQSR(A))	36		

REFERENCES

Epstein, Joyce L. and James M. McPartland, "The Concept and Measure of the Quality of School Life." American Educational Research Journal, Winter, 1976, Vol. 13, p. 15-30.

Flesch, Rudolf F. The Art of Readable Writing; with the Flesch Readability Formula, New York: Harper and Row, 1974.

Hunt, David E. "Person-Environment Interaction: A Challenge Found Waiting Before it Was Tried," Review of Educational Research 45: 209-230, Spring, 1975.

Kluckhohn, Clyde. "Values and Value Orientation in the Theory of Action: An Exploration in Definition and Classification" in Talcott Parsons and Edward Shils (eds.) Toward a General Theory of Action, Harvard University Press, 1951, p. 395-396.

Maslow, Abraham. Motivation and Personality, New York: Harper and Row, 1954.

Morris, Charles. Varieties of Human Value, Chicago: University of Chicago Press, 1956.

Pace, C.R. The Use of CUES in the College Admissions Process, College Entrance Examination Board Report No. 2, Los Angeles: University of California, 1966.

Rokeach, Milton. The Nature of Human Values, New York: The Free Press, 1973.

Rutter, Michael, Barbara Maughan, Peter Mortimore and Janet Ouston. Fifteen Thousand Hours, Harvard University Press, 1979.

Sinclair, R.L. "Measurement of Educational Press in Elementary School Environments," Paper presented at the meeting of the American Educational Research Association, Los Angeles, 1969.

Steele, J.M., E.R. House, and T. Kerins. "An Instrument for Assessing Classroom Climate Through Low-Inference Student Judgments," American Educational Research Journal 8:447-466, May, 1971.

Stern, George. People in Context: Measuring Person-Environment Congruence in Education and Industry, New York: Wiley, 1970.

Walberg, H.J. "Social Encironment as a Mediator of Classroom Learning," Journal of Educational Psychology, 60: 443-448, 1969.

Walberg, H.J. and G.L. Anderson, "Classroom Climate and Individual Learning," Journal of Educational Psychology 63: 381-385, 1972.